THE VETERINARY RECORD

A Weekly Journal for the Profession.

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Foreign Animals (Quarantine) Order.

Less than a year ago this Order was issued by the Board of Agriculture after, we suppose, careful consideration. Its sole *raison d'être* is to provide for the admission of animals under the exceptional conditions of the Act which prohibits the importation of live stock into this country. The Act was by everyone described as a measure to protect against disease and not as a device to interfere with free trade. There are just two conditions under which it may be really desirable to import live cattle—for purposes of exhibition, and for the improvement of our breeds. In many parts of the world are pure-bred herds originally formed by pedigree animals sent from Britain. The re-introduction of such blood may be most desirable, and no one is better able to judge of its necessity than the breeder. The only question for the Board of Agriculture to decide is whether the importation is dangerous. This, of course, is a question for their veterinary advisers, and no other persons are so well able to guide.

In *The Live Stock Journal's* report of the last meeting of the Royal Agricultural Society it is stated that the Board of Agriculture had submitted the correspondence between it and a breeder of Jersey cattle "as to an American pedigree bull he desired to import with a view to the improvement of the breed." The Council replied "it did not consider it desirable that exceptional facilities should be granted."

What is the use of a veterinary adviser? It would be cheaper to have a boy messenger!

Rabies and Hydrophobia.

We referred last week to a case in which a gentleman, bitten by a dog in August last, died of alleged hydrophobia in October. The dog was treated for four days by a veterinary surgeon and then poisoned. A post-mortem examination was made and an opinion given that the dog was not rabid. The carcase of the dog minus the head was sent to the Brown Institution on Sept. 7th after having been buried some days. Two rabbits were inoculated from the putrid spinal cord and both are alive and well at this day.

At the inquest Dr. Bradford told the coroner these experiments were valueless owing to the state of the dog's carcase. Since then the nature of the disease in the man and dog has been determined by the result of inoculation of rabbits from the brain of the human patient. All the rabbits developed rabies. In the report of the "coroner's explanation" a mistake has been made stating that the infected rabbits were those inoculated from the dog.

The diagnosis of rabies is extremely difficult in some instances, and it cannot too often be insisted on that a suspected dog should not be killed, and that when human life is implicated the inoculation test should be carried out. This case also teaches that the head of the suspected dog should not be allowed to decompose before sending it to a pathologist.

ARMY VETERINARY REPORT, 1897.

The report is signed by Colonel F. Duck, but of course refers to the conditions of things during the last year of Colonel Lambert's directorship.

The strength of the Army in horses is 13,386 troop-horses, 1,796 chargers, and 109 mules or about 100 horses less and 40 mules more than last year. If the largest London omnibus company and the largest tramway company joined forces they could show as big a stud as the British Army.

The total number of admissions for treatment was 61 per cent. of the average strength. Of these, most cases came from the young horses of the Remount Establishment. The admissions were most numerous in April, May, and June, fewest in November, December, and January. It is not stated but we assume that these seasons are those in which the new purchases are respectively greatest and least.

At first sight it seems as if 61 per cent. of horses "off work" were a large proportion, but when we read that the inefficiency from absence from duty is only 13 days we conclude that it is due to the great care exercised—care which stops a horse from work for even slight ailments.

The largest number of admissions was as usual from surgical diseases and accidents. From the statistical tables we gather that over 5000 cases of this nature occurred. They are divided into two classes (1) those affecting the locomotory apparatus, and (2) those affecting other parts of the body. The latter are most frequent and include 2500 wounds and bruises of which only three died and 6 were destroyed. What became of 150 described as "relieved" or of 13 returned as "incurable" we do not know. Probably the Army authorities have some reason for retaining these descriptions, but to the outsider they are uumeaning. Of poll-evil there were 3 cases, and of fistulous-withers only 2. Harness galls total up to 300, and fractures to 68. The position of the fractures is interesting. The pelvis suffered in 35 cases, the vertebræ in 15, the jaw in 6, and the cranium in 6. Three of the cranial fractures were

cured, 11 of the pelvic, 8 of the jaw and 2 of the vertebral.

Turning to the diseases and injuries of the limbs we find a total of just over 2000. The following list accounts for most of these cases but a large number are grouped as "relieved" or "incurable," and therefore we are unable to do more than guess at the ultimate result. Surely the incurables might be classed as "sold or killed," and the "relieved" entered as "resumed work." The pathological interest of the tables is not great, but they might have a utility interest if we knew whether "relieved" meant that they were or were not rendered fit for work by the treatment.

Cases of Lameness and Result.

Disease or Accident.		*Cured.*		*Died or Killed.*
Splint	130	77		1
Ringbone	144	1		4
Spavin	103	3		2
Fractures	66	4		56
Sprains	661	335		1
Navicular	138	0		5
Corn	98	82		1
Laminitis	155	38		8
Sandcrack	42	13		0
Pricks (shoeing)	42	41		0
Picked up Nails	222	209		0

Sprains head the list easily. About half are "cured' and 276 are "relieved," whatever that may mean. The number of cases of ringbone, 144, is larger than we should have expected, Accidents from shoeing are very small and speak well for the farriers. Only 7 cases of quittor are returned for the whole army. The fractures implicate all the long bones except the femur. As usual the tibia suffers most frequently—26 fractures. The radius is next with 10.

Diseases of the Eye number 77, of which conjunctivitis claims 35 and rupture 14, whilst cataract is only returned 5 times.

Diseases of the Skin reach 301. Mange affected 83, ringworm 39, lice 37, and cracked heels 60. This list speaks well for the stable management.

Diseases of the Nervous System has only 57 cases, most of them being due to paralysis and vertigo. There were 9 cases of tetanus of which 3 were cured and 6 died. Owing to the difficulties of classification this group is made to include sunstroke and lightning stroke but there were no cases due to either.

The Digestive Apparatus went wrong in 378 horses and caused the death of 53. Colic is not credited with a single death out of 342 cases. Death resulted from strangulation, rupture, calculus, or enteritis in 60 horses,

The Circulatory Apparatus yielded 102 cases, of which no less than 77 are credited to lymphangitis. This is certainly a curious bit of classification and these 77 cases might well be transferred to "locomotory apparatus."

Diseases of the Respiratory Apparatus reach a total of 745 and as there were 1,665 newly purchased horses in the year this is a comparatively small number, although an increase of 21 over last year. Catarrh caused 268 cases; pneumonia 147; pleuro-pneumonia 58; pleurisy 31. The mortality from these was 52. There were 118 cases of roaring of which 103 are returned as incurable.

General Diseases is a class which seems to have been added to the classification as a kind of refuge for the destitute. It includes tuberculosis, scarlatina, cancer and dropsy, besides other diseases which add a large number to the total of 776 cases. Of simple fever there were 344 attacks and no deaths; catarrhal-fever 156, with one death; bilious fever 79; asthenia 100; rheumatism 31; exhaustion 18; of septicœmia there were 8 cases and all died. It would be more than interesting to know the symptoms by which this disease is diagnosed. We should expect they were all seen by one officer.

Zymotic Diseases is a short class in the tables, partly perhaps because it has been robbed by "General Diseases." Only seven diseases are mentioned. Epizootic fever killed two out of 36 cases. Of rabies there was none. Influenza had a mortality of 4 out of 170 attacked. Strangles affected 284 horses with only three deaths. Horse-pox was diagnosed in five cases. Not a single case of glanders occurred in the whole stud, which is probably more than can be claimed for any other army in the world. It is a great credit to the Veterinary Department.

Mortality. The number of deaths from all causes was 532, or 2·5 per cent. of the average strength. The greatest mortality was in the Infantry Transport, the next in the Heavy Cavalry, and then in the Army Service Corps which includes the remounts. Why the heavy cavalry should suffer more than the Army Service Corps is not apparent unless the weight kills them.

From Egypt the returns of accident, disease, and mortality amongst the horses and mules are equally satisfactory. No case of glanders had occurred amongst the 691 horses in that country. There were two cases of hæmaturia, which is a rare disease here.

From South Africa, where there were 782 horses and 115 mules, the casualities are heavier. The died and destroyed amounted to 256. Among the causes of death, overwork and starvation played a part in Matabeleland. Specific fever is credited with having attacked 114 animals with a fatal result in 106 cases. One case of glanders is also returned. As there are 68 horses entered as sold, it is not impossible for more cases of glanders to appear in that disease-swept country.

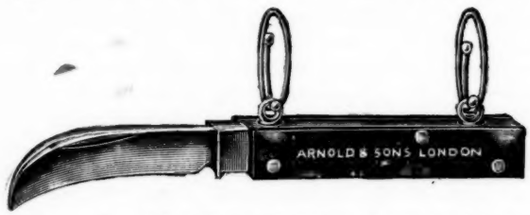
The report concludes with some words of praise for Veterinary-Major Longhurst and Veterinary-Captain Butler for the able manner in which they have carried out their duties at the Army Veterinary School and at the Army Vaccine Institute. The value of the lymph prepared is shown by the fact that the percentage of successful primary vaccinations was—at home 96·5, on foreign stations 82·3. The Institute has sent out during the year lymph for the vaccination of 41,751 persons.

This report shows that the Veterinary Department of the War office is well managed, and it must be noted that it is under a veterinary director. We make no invidious comparisons but—*verb sap.*

CASES AND ARTICLES.

CASTRATING AND EMBRYOTOMY KNIFE.

By J. G. Deans, M.R.C.V.S., Bishop Auckland.



Messrs. Arnold & Sons, London, have made, at my suggestion, a castrating and embryotomy knife combined, which I think will be of great use to the veterinary surgeon. The advantages to be derived from using same are as follows: In castrating by standing operation the blade of the knife, being hook-pointed, does not slip and cut the left hand as is often the case when using an ordinary castrating knife. It can be shut with the right hand and retained there without leaving go of the testicle with the left, or having to pass the knife to anyone to hold. Any instrument can be used with the knife still fixed on to the middle finger of the right hand. In embryotomy the advantages to be gained are as follows: the operator can use the knife and shut it, within the uterus, without having to withdraw the hand as is the case with most other knives, and thereby saving a lot of trouble in getting back the hand again to the same place as before, which is rather difficult in cases where there is a lot of cleansing about.

NECK OF GLASS BOTTLE LODGED IN LARYNX.

The enclosed photograph shows, none to clearly, the offending agent *in situ*. Such an accidental cause of death is very rare, and a few notes on the case may be interesting as well as instructive.

On a Tuesday night I was asked to see a horse which had broken a bottle in its mouth whilst the carman was attempting to give "a fever drink." On arrival at the stable I met a neighbouring practitioner who had supplied the drink, and who was in attendance on the horse for a slight attack of congestion of lungs. We examined him together. There were the ordinary symptoms of fast pulse, accelerated breathing and high temperature which might be expected in a pneumonic attack. In addition there was a rather fixed position of the head suggesting sore throat, and the escape from the mouth of some blood-tinged viscous saliva. Manual examination of the outside of the throat and the course of the œsophagus detected nothing abnormal. On the left side of the trachea, over about the first five or six rings, was a visible enlargement which seemed to indicate a possible foreign body in the œsophagus, but was too low down for the normal position of that tube. On manipulation it was found to be due to spasmodic contraction of one of the long tracheal muscles.

When the mouth was opened, the tongue and cheeks were found much lacerated. Not unnaturally the horse was fidgetty, and resented any examination. Auscultation of the trachea revealed sounds which might be due to obstruction of air by mucus or by some foreign body. These sounds seemed to come from the lower end of the trachea.

No doubt existed that the horse had broken the bottle in his mouth and severely cut himself with the fragments. The box had been carefully searched, and nearly all the bottle except the neck and shoulder could be accounted for. It was "a pint champagne" with sloping shoulder, and no trace of the neck could be found. The carman asserted the horse had swallowed it.

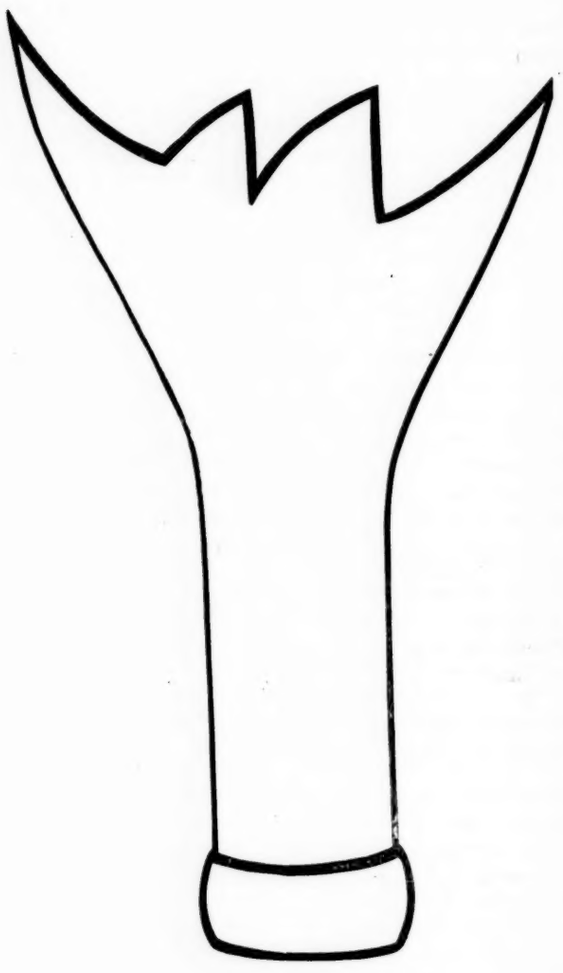
We left for the night, agreeing that little could be done, and that next morning my colleague should examine the mouth and throat with the aid of a gag.

On Wednesday I saw the horse again, the pulse and breathing were worse, the fixed position of the head more marked. Nothing had been eaten, and the horse declined even to try to swallow cold water. No roaring noise was emitted, but the rattle in the trachea was more evident. My colleague had examined the mouth by the aid of a gag, but failed to detect any glass. Our diagnosis was now formed on the supposition that the neck of the bottle had been broken by the teeth and portions had passed down the trachea. We advised immediate slaughter, but the wretched animal was permitted to live in suffering until death took place on the Friday.

A post-mortem examination next day revealed no disease of the internal organs except the usual changes of lung due to pneumonia. No broken glass was found in the trachea, but firmly fixed in the larynx was the neck and shoulder of the bottle. The smooth rounded end of the neck had passed first, and the sharp pointed surfaces of the broken part were buried in the membrane and muscles of the pharynx. In this way the neck of the bottle was firmly fixed and intubation of the larynx effectually secured. The free border of the epiglottis was cut, and the edge of one of the aryntenoids was sawn into by the sharp border of the fractured glass.

All the wounds of the larynx and the pharynx were of a gangrenous appearance.

After thoughts.—Why did you not find the bottle, it was within reach of your hand? If you had made a correct diagnosis could you have removed the offending body? One might have expected some laryngeal sounds to result from such an obstruction! All these things passed through my mind as soon as the larynx was exposed. Of course I ought to have examined the mouth and throat myself with a gag. I left it to my colleague for more than one reason.



Portion of bottle removed from larynx (actual size).

The horse did not co-operate kindly in such a performance, and my age and infirmities render most standing operations impractical. I confess also that my imagination anticipated that the discovery of glass splinters at the back of the mouth, either imbedded in tongue or cheeks, might be very unpleasant for my fingers. I have since thought that a light steel rod would be useful as a sound in such a case. But even if I had examined, it is possible I should not have discovered the bottle neck imbedded as it was in the larynx and pharynx. The broken points acted like barbs, and prevented its movement forward. The irritation of the muscles caused them to be firmly contracted over it. By hand only I might have failed to find the glass, with a metal rod I should certainly have found it.

Supposing a correct diagnosis had been made on the night of the accident, could the glass have been surgically removed?

Certainly not through the mouth. By opening the larynx it might have been extracted but not, I believe, until it had first been broken into pieces. The shoulder was too large to have passed through even a divided larynx. It might have been broken *in situ* and removed in portions.

The possibilities of complication during the violence of casting are not to be forgotten, as very little movement of the sharp-edged bottle might have caused serious hæmorrhage. I am not altogether proud of the case, so enclose my card and use initials

R.C.H.

ANTI-TETANIC SERUM AS A CURE FOR TETANUS.

By S. Stockman, Professor of Pathology, Dick College

In view of some recent laudatory articles and a trade circular on the curative value of anti-tetanic serum, it may be of interest to recall what Nocard, who first brought this substance to the notice of the veterinarians, has said on the subject from the first, as his experience of it is certainly greater than that of anyone else.

In the *Recueil*, December, 1894, Nocard compares the action of strychnine with that of the tetanus toxines. Here is the substance of his remarks: If guinea pigs receive hypodermically a poisonous dose of strychnine, tetanic spasms appear after the lapse of several minutes. If they receive a dose of tetanic toxin 500 times greater than the minimum fatal, they preserve all the appearances of health for from 20 to 30 hours and even more after the injection. It is only after that long period of incubation that the first signs of tetanus appear. During all this time the poison absorbed in such great quantity has not been inactive. It must have exercised on the cells an action of its own, whence arise the tetanic phenomena.

To put it plainly Nocard says that during this inoculation period the toxin is exerting on the cells an action which culminates in the tetanic phenomena.

He continues, "One sees from that the uselessness of intervention when it is subordinate to the appearance of signs showing that intoxication has already been produced for some time."

After this in the same article follows the description of an experiment showing that the serum, even in doses of 20 cc., every two hours after the first symptoms of tetanus appear, does not enable one tetanic sheep to live longer than another untreated. He then continues, "It is necessary to renounce for the moment the hope of curing declared tetanus. The most rational and energetic treatment has only a slight influence on the issue of the disease; the acute cases are almost always fatal, the only cases that recover are those which assume from the first a slow course, not that all cases of chronic tetanus must

recover, far from it, but it is only among the latter that one observes a small number of cures."

The above is a common experience of tetanus cases. It is not justifiable, then, to attribute curative effects to the serum, unless one can show a large difference in the mortality of the cases treated by serum and those treated in the ordinary way. I have seen cases of chronic tetanus recover and have a short convalescence, although never a drug was administered.

In the *Recueil* of 30th November, 1895, Nocard, after showing evidence of the high value of the serum as a preventive, says: "From all these facts, I think I am right in concluding, that if the curative treat- is still to find, one will be able at least, thanks to the preventive injections of anti-toxic serum, to reduce by a large number the victims of that terrible disease."

In the *Recueil* of 15th August, 1897 (note, paper translated in *The Journal of Comparative Pathology and Therapeutics*), Nocard gives the result of treatment by the serum in 36 cases of tetanus experimentally produced in horses. These experiments show that one cannot hope for favourable results, unless large doses of serum be injected into the veins at least 48 hours before the first symptoms appear. This, of course would be impossible in practice. At the end of this article Nocard states that it is his conviction that the serum treatment is the best known, but immediately afterwards adds: "Indeed all my correspondents, who have treated tetanic horses by injections of serum have declared themselves well satisfied, not that the number of cures obtained has been higher, but the crises have been less numerous and less intense. When the cure comes on convalescence was much less long." I think it must appear doubtful if the serum treatment is responsible even for the shortness of convalescence, because we know that in the vast majority of tetanic horses they are the milder cases that most frequently recover.

In view of the slender evidence in favour of the serum having any curative effect whatever on cases of declared tetanus, and considering the high price of the more reliable qualities, I do not think one is justified in recommending a client to go to the expense of having his case so treated.

THE TREATMENT OF TETANUS.

By E. Wallis Hoare, F.R.C.V.S.

In veterinary literature, even from the earliest times, we find that the treatment of tetanus received a marked share of attention. Long before anything was known with reference to the pathology of the affection various modes of treatment were recommended and practised, and up to the present day the pharmacopœia was well-nigh exhausted, but no drug was found that could be put forward as either a preventive or curative agent. Some practitioners, no doubt, appeared to achieve a larger share of success than others, and from time to time different drugs were lauded, because a series of cases happened to recover when such agents were administered. At one time heroic measures were adopted, and according to our present therapeutical ideas such were irrational to the highest degree, but even under such treatment cases were reported as recoveries.

As a result of the consideration of the bulk of evidence on this subject, practitioners began to enquire whether the cases reported as recoveries depended on the medicinal agents administered, or, on a natural resistance on the part of the patients to the fatal effects of the disease. In the present day we find, just as in the past, a certain number of recoveries, but a far larger amount of fatal cases. We frequently hear of the cases that recover, but those that die are not brought before our notice, because such is a foregone conclusion, the fatal nature of the disease being universally admitted.

When, owing to the advances in pathological science, it was clearly demonstrated that the disease really depended on the entrance into the body of a specific bacillus, the faith of many in the value of medicinal agents in the treatment of tetanus was shaken, and when the tetanin serum was discovered great hopes arose of a new and important discovery in the era of therapeutics. On the introduction of this substance it was not largely adopted in general practice, but lately we read of most encouraging results from its use. Like all other new methods of treatment, however, it must stand the test of adverse criticism, and although from certain quarters the results have not proved satisfactory, and high authorities question the value of the serum, still it is quite evident that in our present state of clinical knowledge, a definite opinion of its usefulness or otherwise cannot be given. Laboratory experiments, although very desirable in the investigation of subjects in connection with therapeutics, cannot be compared with clinical experience in point of value. It is to practitioners we must look for correct information as to whether the tetanin serum is useful or valueless.

In considering the subject it will be necessary to have a report of the unsuccessful cases as well as of the favourable ones. And in judging of the unsuccessful cases we must bear in mind that in all departments of therapeutics a certain amount of unfavourable cases must of necessity occur. The clinician cannot expect infallible results from the use of any medicinal agent, so much depends on the severity of the disease and on the powers of resistance of the patient.

To question the value of the serum on the evidence that cases of tetanus have recovered without any treatment, is hardly a logical method, because such might be applied to the therapeutics of any disease. We might, for instance, assert that cases of any disease that recover were spontaneous recoveries, because we have not yet succeeded in arranging the treatment of such as a mathematical problem. It is difficult, if not impossible, to definitely ascertain the exact part that drugs take in promoting a return to the normal condition, far more difficult, however, is it to dogmatically assert the effect that drugs really produce on the morbid condition for which they are administered. The more we study the question, the greater our scepticism on the subject becomes, and the less are we inclined to receive the laid down dogmas of authorities as infallible. If, however, the time comes when the mortality of tetanus cases is

reduced in a marked degree by the administration of tetanin serum, then indeed we shall regard it as a valuable therapeutical agent. How can this be definitely ascertained except by statistical evidence? At present we find a series of cases recorded by some practitioners in which recovery has taken place after the serum treatment had been adopted.

If under a variety of conditions and circumstances such a course of events were to continue, surely the prescriber would feel justified in claiming for the serum an important place among therapeutical agents. But we know perfectly well that tetanus is one of those diseases which is not frequently treated in the early stages, but receives the most irrational treatment from the owner and his empirical friends.

Many other diseases, if neglected and maltreated, would be placed beyond the pale of therapeutical aid, therefore, in judging of the value of the serum in such instances we must allow it the same latitude that we extend to other remedies in the treatment of disease. The average number of cases of tetanus that recover spontaneously, is not known, because in the majority of instances treatment of some kind or another is adopted, and, as we know too well that by far the larger number of cases terminate fatally, we are bound to admit that the spontaneous recovery is the exception rather than the rule.

Another point worthy of consideration is that we cannot often get our instructions with reference to the care of the patients carried out in a satisfactory manner; and most of us object to bring cases of this kind into our infirmaries, because, along with the risk of considerable outlay in the treatment of cases of so fatal a nature, we run the danger of infecting our premises. Besides many cases of the disease are so far advanced that the transit would, in itself, be a serious danger to the patients.

EXTRACTS FROM FOREIGN JOURNALS.

PERITONITIS IN CATTLE.—By M. BONGARTZ, of Bonn, Veterinary Surgeon.

(*Continued from p. 239.*)

A few words now on the legal aspect of the malady. First of all let us look into that condition where a sero-fibrinous exudate is found on post-mortem without a proximate cause being present. How far back does the commencement of the illness date? It has already been pointed out that peritonitis may arise very suddenly, and run its course in a few days, and on the other hand the illness may continue many weeks. Hence it will be wise for the expert to base his judgment on certain fixed clinical facts. It is certain that a dairy cow, on the day on which a general peritonitis sets in ceases to give any great amount of milk, the appetite also is lost, and a series of other symptoms arise pointing to a severe illness. If the result of post-mortem is in accordance with these observations it is easy to decide the length of time of the illness. If one is to judge from first appearances one is not in a position to say that the illness is of more than two to five days duration.

Again, if one finds on post-mortem a foreign body, together with a considerable sero-fibrinous exudation, which foreign body has found its way from the reticulum to the diaphragm or other organ, and whose course can be traced by a fistulous tract or adhesions, then the questions arise, how long have these conditions been in evidence? were they present before the purchase of the cow? and is the fatally terminating peritonitis the immediate result of traumatic influence?

The answer to the first question will depend on the existing changes present, on the strength of the formed fibrous adhesions, on the thickness of the walls of the possible abscess, or on the quantity of pus present and its nature.

The answer to the second question, whether a general peritonitis is a necessary result of a local injury to the peritoneum is not so easy to answer. Experience teaches that in many slaughtered cattle injuries from foreign bodies may be found which lead to adhesions or cicatrisations of certain organs, but there is no general spread of peritonitis. Besides, intentional and necessary wounds of the peritoneum occurring in rumenotomy, or puncture of the rumen, or even accidental wounds, only exceptionally set up a general peritonitis. If the fatal peritonitis be ascribed to a foreign body, then proof should be furnished that the changes in the immediate vicinity are of longer duration than those of neighbouring tissues, and that inflammation has originated at one place and spread further. Abscesses in the track of foreign bodies of considerable circumference, strengthen the suspicion that the foreign body has indirectly brought about the peritonitis, although the offending body may have departed altogether from the seat of the abscess. It is easier to judge of the age of peritonitis depending on castration or difficult parturition, as then the time can be calculated from the day of operation, and the duration of the illness noted.—*Berliner Thierarzt. Woch.*

G. M.

VETERINARY SOCIETIES.

ROYAL VETERINARY COLLEGE V.M.A.

The 241st general meeting of this Association was held in the New Theatre of the College on Friday, October 29th, 1897, at 6.30 p.m. Mr. G. W. Bloxsome occupied the chair. There were present Professor Hobday (president), Mr. A. C. Wild, M.R.C.V.S., Mr. R. W. Hall, M.R.C.V.S. (sec.), and 57 members.

The minutes of the last meeting having been taken as read, Mr. Hall exhibited a very interesting post-mortem specimen consisting of the duodenum of a pug dog, which had been perforated by an ordinary wooden meat skewer, the point of the skewer having passed through the wall of the bowel and penetrated the diaphragm and left lung. The specimen was obtained from an animal brought to the Free Clinique of the College.

"SOME CLINICAL CASES."

By Mr. A. C. WILD, M.R.C.V.S.

Mr. Chairman and gentlemen, the following notes of cases which have come under my notice are, I think, very interesting from a clinical point of view. The cases

are not of an uncommon nature, but there are points in each which require elucidation, and which accordingly should lend themselves for discussion. The first case is one of

HÆMOGLOBINURIA.

Subject.—Canadian grey mare, a vanner, 5 years old.

History.—Owner had had her about a month, she worked well every day. Was in the stable three days at Christmas, during which time she had her usual allowance of food. Her illness occurred on the first journey after this rest. She came a distance of five miles, seemed well, and dunged at least twice on the way; on the return journey she commenced to crouch, her loins apparently dropping; with great difficulty she was got along a mile to a stable. Directly she got in she went down, rolling about violently in great pain.

I saw her about one hour after this seizure, found her in great abdominal pain, and so violent that I gave ʒiv. chloral and ʒj tr. opii. to quiet her, so that I could make a more detailed examination. The mare soon got quieter, I then found pulse 60, temp. 101½, body warm, no sweating. Rectum contained a few hard fæces, pelvic colon was distended and hard. She kept looking round at her right side, and was quite unable to raise her hind quarters.

I in the first place tried to relieve the abdominal pain by chloral and opium, at 1 o'clock I injected one grain of eserine into the jugular with no effect, I repeated this at 4 o'clock with the result that the mare soon passed some hard fæces, and a lot of gas. Hot fomentations were then applied to the belly, and the abdominal pain soon subsided; she still kept down.

On December 29th, still unable to rise, had dunged twice, drank chilled water and ate three sloppy bran mashes, I gave her ʒx of magnesium sulphate. She afterwards passed some urine which the attendant said was nearly black. I again examined per rectum, as now and then she was still griped. The pelvic colon was considerably distended with gas, temp. 102½, no sweating, I gave another sedative. The next day (the 30th) I took a catheter and drew off the contents of the bladder, which amounted to a few ounces of urine of a dirty brown colour. She seemed easier, but it was noticed that after eating or drinking a severe attack of gripes came on lasting about ten minutes. The bowels were now acting freely.

The specimen of urine I obtained had a sp. gr. 1030, of a dirty brown colour, and by Esbach tube showed equivalent to 1¾ grams of albumen per litre, free from sugar.

On 31st: Looked better, eats mashes readily, the urine she passes still dark, cannot raise her hind parts. I tried to sling her but failed, owing to structural condition of stable. I now used a strong ammonia liniment to loins, caught some urine and found the albumen had decreased to one gram per litre as estimated by the same process as before, and that the urine was lighter and clearer.

2nd: She stood up for nearly one hour.

3rd.: Gets up and down, does not care to stand more than half-an-hour at a time. Urine sp. gr. 1030, ½ gram. albumen, normal in colour.

After this she continued to improve in general health, but the wasting of the muscles of the quarter was remarkable. It was another four weeks before she was able to walk home, a distance of three miles, and then arrived greatly distressed. She was afterwards turned out to grass, and I did not see her until July 22nd, when she was perfectly fit and well, the muscles had regained their size, and she did not show the slightest sign of weakness in her hind part.

This case is interesting and instructive; it illustrates the prominence of abdominal pain that not infrequently ushers in an attack of hæmoglobinuria. I can call to mind several cases of a similar character seen in the London streets during my pupilage, that I was then taught were acute enteritis. In the case recorded it will be noticed that the quantity of albumen present in the urine was small, and that there was suppression of urine for nearly two days. Sweating, so frequently noticed, was in this case practically absent, and the muscles, although shrinking in a remarkable degree, altogether recovered their size and function.

In connection with the percentage of albumen, perhaps it will be interesting to compare with the following group of cases.

In 14 cases recorded by M. Lucet with two deaths, the smallest quantity of albumen from urine taken soon after the seizure was four grammes per litre; the greatest quantity 23 and 25 grammes, the two latter cases terminated fatally. In the above group of 14 cases muscular lesions appear to have been for the most part well defined, various regions being affected such as croup, loins, shoulders, pectoral etc.

I think we shall always find a great relationship between the quantity of albumen excreted and the severity of the case, for this reason, it is necessary to estimate the albumen as a guide to prognosis, especially as the Esbach process does not take any appreciable time. If it is found that the quantity of albumen approaches 20 grammes per litre we may look forward to a fatal result.

I should like before finishing this case to point out that we should be deriving great benefit by a discussion on the following lines:—What is the connection between the colic and the disease, is it always intestinal? May it be renal?

Is the paralysis due to the absorption of a toxine, or is it due purely to the muscular lesions?

Do not the symptoms of acute kidney disease with uræmic poisoning show a great resemblance to those of hæmoglobinuria.

What is the percentage of cases occurring in the colder months?

RADIAL PARALYSIS.

Subject.—Brown gelding, carriage horse.

Previous History.—Had been under treatment three weeks for catarrh, with profuse nasal discharge, had recovered, and been to work for three or four days. On the morning of August 4th found very lame near fore. The owner had the shoe taken off, and the foot searched by the farrier, with no result. Soon after I saw the case and learnt that the animal came in late the preceding night perfectly sound.

On examination I found the knee and fetlock joint much bent (flexed), the shoulder and fore-arm straightened; the point of the ulna much lower than in the sound limb, the foot knuckled and resting on the toe, the limb appearing several inches longer than its fellow. When moved the knee and fetlock joint were still kept bent, with the front of the foot scraping the ground. I ran over in my mind the condition that would bring about this, those that especially came into my head were oblique fracture of ulna, reparation of the summit of ulna, tearing of the terminal portion of the triceps extensor cubitis, rupture of the tendon of extensor pedis, paralysis of the musculo-spiral nerve. I adopted a process of differential diagnosis as follows: Fracture of the ulna—could not make out crepitation, nor move the ulna from the radius, nor find any displacement of the summit of that bone. Tearing of the triceps—could detect no heat, pain, or swelling over the region. Rupture of the extensor pedis tendon—could not detect heat, swelling, nor displacement of the tendon, nor did movement cause pain. I then had to verify my diagnosis of paralysis of the cubital extensors; this I did by pinching and sticking a pin into the muscles; they would not contract, and were flaccid on manipulation. The case was treated by massage, movement, and rubbing with strong ammonia liniment.

On the 5th flexion not so marked.

On the 10th can stand up straight on the limb, but when walked the leg suddenly gives way, and the animal is in danger of coming to the ground.

On 12th walks sound for some paces, the leg then collapses but is recovered quickly. Soon after this the horse was turned out, and at present date owner says he can trot as well as ever he did.

Another case occurred in a cart horse, sound the night before, found lame the next morning, similar symptoms but much less severe; same treatment with complete recovery in 10 days.

In considering these two cases, I think we must first lay stress on the fact that both cases occurred as lameness arising in the stable, and secondly as to what condition would bring about this injury to the nerve. I think it is either due to nerve stretching or pressure on the nerve, but against this we have to note the statement of Möller that in the summer of 1887, he saw many horses with this disease which is generally rare; but on the other hand many observers have traced it to injury, and Möller himself says that "since" I have taken to cast on soft mattresses, such cases have seldom occurred.

Another theory with regard to this condition is, that it is brought about from deficient blood supply, due to injury or pressure on the blood vessels of this group of muscles. In connection with this subject it has been observed that in some cases the large head of the triceps is especially involved, the middle head escaping. Perhaps an explanation of this will be forthcoming if I outline the normal course and distribution of the musculo-spiral or anterior radial nerve. To the axillary course of the nerve we need not allude as it has practically the same course as some other nerves of the great plexus. We will take it up as it obliquely crosses the subscapularis and large or internal teres muscle, it arrives at the deep humeral artery, and passing behind the humerus dips between caput magnum and the anterior brachial muscle (humeralis obliquus). In this part of its course (which is all that is necessary to trace for the purpose of this article) it gives off, before dipping between the muscles previously mentioned, a thick branch which gives both upward and downward fibres, the upward ones bending round the common tendon of latissimus dorsi and teres major (internus), and thus into the caput magnum; the downward ones, some into the caput magnum, others into the caput medium. In taking its spiral course round the humerus, the parent trunk detaches branches to caput medium, parvum, and anconeus.

I should like to hear the opinion of others as to whether they consider that the nerve is out of the way of pressure from the horse laying with a doubled up foot, like, for instance, one knows to be a cause of capped elbow. I should also like to point out that the two nerves which frequently become injured giving rise to paralysis of muscle of the limbs (viz., the musculo-spiral, and circumflex), both spirally turn round bone.

Ulceration of Tarsus.

Brown gelding pony. When first seen was stiff on his left hock, this gradually got worse, until in three weeks time he was quite unable to trot or move the joint without showing great pain. The owner did not think he was lame in the hock, but blistered the flexor tendons; subsequently the hock was twice blistered. When I first saw the case the animal had been lame for 8 or 10 weeks. I suspected articular disease of the tarsus, and gave an unfavourable prognosis, but the owner kept him for another two months, before he was destroyed, so that the period from the first symptom of lameness until destroyed was about 6 months.

When I first examined the hock I felt an enlargement higher up than the usual seat of spavin, but no enlargement between the scaphoid and large cuneiform, the groove between the two bones being easily detected. I made my diagnosis from the cardinal symptom of great pain when the hock was moved, and the persistency with which the animal avoided bringing his heels to the ground. The tendons were fine and no signs of contraction.

I have no other remarks to make, but hand round the affected bones, drawing attention to the enlargement on the astragalus and the worm-hole like appearance of the articular surface of astragalus, scaphoid, and in a less degree the cuneiform magnum.

I also pass round the bones of the hock from a pony that was very stiff in that joint, the specimen shows ossification of the scaphoid-cunean and inter-cunean interosseous ligaments, without any enlargement over the seat of spavin.

Suppurative Tendino-Vaginitis.

Grey cart mare, aged. Off knee much enlarged from inflammatory swelling, and a partly healed wound. Had been under treatment for open joint. On examination I found I had one of those troublesome cases of suppurative tendino vaginitis, the severity of which was largely due to the treatment previously adopted founded on an error in diagnosis, wherein the synovial discharge from the broken knee was taken to be due to perforation of the capsular ligament, and every effort was made to stop the discharge by the injection of agents which are known to coagulate albumen. This had the effect of retaining in the sheaths of the tendons suppurative discharges which undoubtedly should have been allowed to drain away freely. I determined to re-open the synovial sheaths and allow free drainage. I opened first the sheath of the extensor metarcarpi magnus, by opening up the original wound, I then ran a bistoury up and down the sheath, after the upward incision a little thick pus oozed out; the downward incision was followed by a cousiderable gush of venous blood, which welled out so freely that in a little time two quarts escaped with no signs of stopping, I therefore applied a torniquet above and below, plugged the wound and did up the joint with cotton wool and bandage.

On 13th, 14th, 15th, 16th, 17th, 18th, the wound was dressed with boracic acid and iodoform; drainage was free and the animal in less pain. In consequence of the marked improvement I did not open the sheath of the extensor pedis, as I came to the conclusion that there was no suppuration in it.

29th, knee more painful and discharging sanguineous pus. I syringed out with carbolic lotion, also again opened up the wound superficially.

30th, less discharge, which gradually decreased from day to day until in a week the wound was healed up sufficient for the animal to be turned out. The mare was allowed six weeks at grass and was then put to work: she worked perfectly sound. The knee is thickened but not nearly so much as I expected.

On the conclusion of each case a brisk discussion took place in which the following gentlemen took part: Prof. Hobday, Messrs. Hall, Kitchin, Bloxsome, Deacon, Taylor, Parke, Buckingham, Thackeray, Anderson, and Woodruffe.

Votes of thanks to the Essayist and Chairman terminated the proceedings.

C. Radway, *Assist. Sec.*

The 242nd meeting was held on Friday, November 5th, 1897, Mr. R. L. Green occupied the chair. There were present Professor McFadyean, Messrs. A. E. Johnson, M.R.C.V.S., R. W. Hall, M.R.C.V.S., (sec.), and 40 members.

Mr. G. W. Bloxsome read a highly instructive and most carefully compiled essay on "Rabies."

Mr. R. W. CARLESS opened the discussion, which was well sustained, and in which the following gentlemen took part: Messrs. Hall, Park, Percy, Thackeray, Knott, Walker, Brown, Anderson and Green.

C. RADWAY, *Assist. Sec.*

THE CENTRAL VETERINARY MEDICAL SOCIETY

The Central Veterinary Medical Society held their ordinary general meeting at the Holborn Restaurant, London, W.C., (Phœnix Room), on Thursday evening, November 4th, 1897, at 6.30 p.m. The president, Mr. J. A. W. Dollar, Esq., occupied the chair.

The minutes of the preceding meeting were, on the proposition of Mr. F. W. Wragg, seconded by Mr. A. Prudames, taken as read.

ELECTION OF FELLOWS.

A ballot resulted in the election unanimously of the following gentlemen: Messrs. J. Webb, Bishop's Stortford; F. Evelyn Place, 18, Gayton Road, Hampstead, N W.; Stanley H. Skelton, Forest Gate, E.; with Vet.-Captains J. A. Meredith and Robert Moore, Army Veterinary Department.

PRESIDENTIAL ADDRESS.

By MI. JNO. A. W. DOLLAR.

Gentleman,—Not the least pleasing of the varied duties I have to perform this evening is that of once more acknowledging my deep sense of the honour and responsibility attaching to the office to which you have seen fit to call me. The annals of the Society record so long a list of distinguished and learned presidents that I can only regard my election as in the nature of an experiment; an experiment, however, in which the Society's fortunes are pledged equally with my own, and in which every member will loyally co-operate to ensure a happy conclusion.

The passing year has not been specially rich in stirring incidents if we except that most striking of all which brought together in the metropolis of the world loyal subjects from every land to lay at the feet of our venerable Empress-Queen tokens of respect and attachment, and in which we were privileged to participate in our capacity of members of a learned body no less than as private citizens. But, ignoring for a moment these greater events and directing our attention to the advances we have to register as a profession, we find a record of steady improvement on which we may fairly congratulate ourselves. Living in the last decade of a century remarkable for the inception and development of great inventions, for the revolution of old methods of thought and the founding of new, for advance in all the sciences, and perhaps not least in that of medicine, we are apt to ignore those evidences of progress which are nevertheless apparent to the careful observer.

The great event of the professional year has undoubtedly been the passage of the Public Health (Scotland) Bill, a measure for which everyone has worked with astonishing enthusiasm. The solidarity of the profession on that question indicates the existence of an *esprit de corps* on which we cannot too warmly congratulate ourselves, and suggests a better understanding between individual members, from which great things may be anticipated.

Having touched on the political side of the year's progress, I may perhaps be pardoned for alluding to an ingenious suggestion, the author and details of which, however, I am precluded from revealing, by which, at no distant date, we may find ourselves in a position to command the assistance of at least one Member of Parliament by the simple process of recording a collective vote. I need only say that the idea is receiving the consideration of some of the keenest political minds we possess, and that, if found practicable, every effort will be found to carry it through.

To the list of members of our calling who have achieved distinction in the world of art, of medicine, surgery and the sciences, we must now add the name of a successful candidate for the honours of the law, a candidate, moreover, who is a distinguished member of this society, I allude to Mr. Barrett. His will, at times like the present, recall the successes of those who have gone before us; to remind the growing up generation of the triumphs achieved by men like Nettleship, the distinguished ophthalmic surgeon; of Adrian Jones, one of whose fine animal sculptures adorns the Council Chamber of the Royal College; of Beach, the brilliant commander of cavalry, whose manifold daring exploits and single-handed combats against overwhelming odds, carry us back in imagination to the times of the great Saladin; of the inventors, like Gowing, maker of the first railway semaphore signal and lamp, and of the solid railway carriage wheel almost as it exists to-day; of Dunlop, whose name is a household word wherever the cycle reaches—and that is throughout the world; of those distinguished by degrees in medicine and science no less than of those who guard the gigantic interests of agriculture or, from magisterial benches, administer the law. Lastly are those who, in the service of Her Majesty, have earned the well merited distinction of the Victoria Cross, the Commandership of the Bath, or the Indian Distinguished Service Order.

Still closer to us as practitioners are the evidences of progress in our every-day life; the increased respect accorded us in Courts of Law, the larger interests confided to us in respect to contagious diseases and the growing recognition of our opinion in matters relating to what is, and what is not, legal cruelty. The remarkable outburst of professional feeling in the case of the R.S.P.C.A. *v.* Appleyard has not been without effect, and the convincing proof there given that the profession would no longer suffer the monstrous persecution of one of its members for performing a perfectly legal operation, has resulted in the withdrawal of notice of appeal. Every effort must be made to finally convince the R.S.P.C.A. that whilst the veterinarian yields to none in his desire to alleviate the sufferings of the lower creatures he will endure no interference by that body in the domain he legally controls.

The medal struck to commemorate the work of the late John Henry Steel and to mark our recognition of scientific and literary ability, has this year found worthy recipients in the persons of Professor McFadyean and Veterinary-Major Fred. Smith. The selection is peculiarly happy and will, I am sure, be received with acclamation throughout the profession.

While we may justly congratulate ourselves on these forward steps there are not wanting subjects of doubt and controversy for which we can only hope that time will find an answer. The condition of agriculture has been such that country practitioners find difficulty in making both ends meet, and in many parts of the provinces which I have this year visited the slightly increased prosperity consequent on a good harvest and a shortage of wheat abroad is said not to make up for the want of preceding years. Everywhere also one hears complaints of the competition of the "veterinary chemist" and so frequent have these been as to lead me to consider a possible scheme for meeting it; which, however, I regret to say, has not yet entered on a practicable stage.

A long time ago my friend, Mr. Hunting, pointed out the desirability of some of our students taking advantage of the unique opportunities for original research offered by the Brown Institute. As I worked there for

a short time myself I can fully corroborate this, but I regret to say that up to the present such facilities remain unused, probably for the reason, long since indicated, that what is wanted is not so much facilities for work as the money with which to prosecute it.

Another matter for regret is the small interest shown by members of the profession in the study, and recording of clinical work. Every editor of a veterinary periodical will confirm this, and it is greatly to be desired that more attention be paid to clinical study, which should occupy a position of at least equal importance with any other department of veterinary medicine.

Lastly, gentlemen, under this head comes the vexed and still unsolved question of the admission of ladies to the profession. As an individual I must express my profound conviction that it would not be conducive to the best interests of the profession that ladies should be admitted, but the whole question is at present *subjudice*, and it is neither desirable nor permissable to offer remarks on it.

Coming now to veterinary medicine and surgery we remark the enormously important position suddenly assumed by the veterinarian in South Africa as a consequence of the outbreak of cattle plague, and although a foreign adviser has been called in to investigate and advise, his work can in no way be suffered to overshadow that of our own profession, to whom after all must be entrusted the practical details of any scheme propounded. Hardly less important are the labours of our Civil Veterinary Department in India and Burmah, where rinderpest abounds. When we come to consider that each veterinary officer is entrusted with a district nearly as large as England the onerous and responsible character of these duties is borne in on us, and we can well appreciate the statement of men like my friend, Major G. H. Evans, that for weeks together the veterinary officers never enjoy the luxury of a civilised house or bed, and that it is no uncommon experience to be continuously travelling for months.

In England the use of mallein and tuberculin is steadily extending, and the great value of these agents is coming to be appreciated by the public at large. I am privately informed that a large number of cattle, the property of Her Majesty, were lately tested with tuberculin and that an effort is being made to eradicate tuberculosis from certain, at least, of the Royal herds. It is perhaps superfluous to point out to those of the veterinary profession, who specially interest themselves in such subjects, that the large rewards offered by the Governments of Australia and India for methods of exterminating rabbits and for curing persons bitten by snakes still remain unclaimed.

In the domain of surgery there is little to record. I cannot fairly include in this year's progress the exceedingly interesting experiments of Professor Macqueen in regard to abdominal surgery, but median neurectomy, an operation suggested by M. Pellerin. has been practised in a large number of cases by Professor Hobday, apparently with good results. Up to the present reports by practitioners are wanting, and, indeed, sufficient time has scarcely elapsed for the great body of the profession to pass a judgment on the operation.

A forward step to which I look with great interest is the institution of post-graduate classes for veterinary surgeons There must be a large number of persons who would be glad to receive the latest information in regard to matters concerning their profession, but who never hear of many important improvements and who would be unable to utilise printed information unless supplemented by ocular demonstrations. To assist these I have suggested to our learned friend, Professor McFadyean, the desirability of instituting such classes, and he has signified his approval of the idea though at present, owing to his multifarious duties, he is unable to give it practical form.

Turning now to our colleagues of Europe we find evidence of constant endeavour and loyal enthuslasm to the calling in the large number of new books issuing from the press. Every week witnesses the birth of some fresh contribution to our science, but perhaps the most important work of the year is Bayer and Fröhner's "Handbook of Veterinary Surgery and Obstetrics," in which 27 eminent collaborators, representing almost every European country, have combined to produce a series of volumes extending to 4,000 pages and containing almost as many illustrations.

In France Professor Nocard has produced a new variety of tuberculin for the purpose of outwitting the tactics of clever cattle importers who had discovered that one injection of the ordinary tuberculin enabled a tuberculous animal to successfully withstand the same test if applied a few days later. He has further prosecuted the study of tetanus and published some interesting particulars as to the best methods of using antitetanic serum, and in addition has drawn our attention to a form of suppurating lymphangitis closely simulating farcy, but distinguished from this disease by its its comparatively benignant character. In Germany Dieckerhoff's treatment of purpura hœmorrhagica, by the intratracheal injection of iodine solution, a method I had some part in introducing to this country, has been supplemented by the treatment with anti-streptococcus serum. Koch has prosecuted a series of experiments on rinderpest and suggested new methods of prevention. From Italy Starcorici announces the discovery of the bacillus of rinderpest, but this discovery, so far, lacks confirmation.

A mere chronicle of events, however, is not entertaining. I therefore beg you to pardon further details. The events of the evening have yet to come, and it would be as inexcusable as it would be ungracious to anticipate the remarks which fall to be made by those far more practised and more eloquent speakers whom we are all anxious to hear. I thank you, gentlemen, for your presence, for your patience, and for your attention, and I trust that you may all enjoy a very pleasant evening.

Annual Dinner.

The dinner was held in the Queen's Salon. The attendance numbered fifty, comprising the following gentlemen, as guests of the Society: Drs. D'Arcy Power and Clark, Professor Penberthy (President Royal College of Veterinary Surgeons), A. W. Mason (President National Veterinary Association), H. King, Bournemouth (President Southern Counties Veterinary Medical Society); Professor Bayne, F.I.C.; Professor J. McFadyean (Dean Royal Veterinary College, N.W., A. Wheatley (Reading), G. Thatcher (Solicitor R C.V.S., and A. W. Hill (Secretary R.C.V.S.); and the following fellows and friends: Messrs. F. W. Wragg, Col. F. Duck (Director-General, A.V.D.), J. Baxter, Professor J. Macqueen, W. J. Mulvey, W. W. McAdam and H. D. Oliphant (Macadam's Horse Malt Co.), Hugh A. M'Cormack, and friend; J. E. Rickards, and friend; F. Samson, W. Reekie, T. C. Chesterman, J. Webb (Bishop's Stortford), F. C. Mahon (hon. sec.), R. H. Singleton, W. Perrymann, Geo. C. Lowe, W. F. Barrett, H. Edgar, J. S. Price, A. E. Gostling, A. Rogerson, M. Clark, F. W. Dowell, F. H. Riddler, A. Prudames, J. Rowe (hon. treas.), W. Hunting, and two friends; W. Dollar, and friend; H. Sessions (Brighton), A. L. Butters, J. Wilson Barker, L. Savournin, and F. H. Ridler.

Letters and telegrams were received from G. Whiteley Batley (President Yorkshire V.M.A.), Capt. Meredith, A.V.D. (Aldershot), Dr. Collins, L.C.C.; The Right Hon. W. Long, M.P., J. S. Carter (Burnley), Prof. Hobday, H. G. Rogers, J. S. Hurndall, J. W. Caton, H. Springitt, J. Woodger, S. Slocock, Major I. Matthews, A.V.D.; Col. Kettle, A.V.D. (late president C.V.M.S.)

A. Blake, G. Magun (Liverpool), H. Howse (Lincoln), Professor Dewar, Dr. McCall, Captain F. Raymond (Leeds), Professor W. Pritchard, A. Broad, R. H. Howard (E.C.V.M.S.), Thetford; F. G. Garnett (Windermere), and B. Freer, of Uppingham.

At the conclusion of the dinner, which as usual here was a good one and well served, the toast of "The Queen" was briefly and suitably proposed by the president, was loyally received, and a verse of the National Anthem was sung. The President then gave "The Prince and Princess of Wales," with a few remarks on their popularity, and H.R.H.'s well known interest in agricultural and sporting matters. After this had been duly honored Mr. Henry Edgar proposed The Army, Navy and Reserve Forces. He spoke of the splendid work that our men are doing on the Indian frontier, and thought that it required far more courage to face the foe now than in former times; but that the better the army and navy are kept up the less likely the need for their use. He coupled with the toast the names of Col. Duck, Mr. F. Dowell, and Mr. Matthew Clark.

Col. DUCK in responding said it was a toast which was always received with enthusiasm, and was always a pleasure to reply to. He thought the popular notion of a soldier's life was not at all like the real thing. People thought it was a jolly life, that they had nothing to do at home but walk about the streets; and on service to fix bayonets and go in. But it is very different. We as a nation, think that we are not an aggressive people, that we do not covet our neighbour's ox, nor his ass, no, his land, but unfortunately others did not think so and as a result come differences, then difficulties and—Tommy Atkins; thus we have always a small war on hand. He then gave a slight sketch of some of the difficulties to be encountered in the present expedition against the Afridis. The tribes engaged are warlike and fanatical, with a firm belief that death in action means for them a sure road to Paradise, with a choice selection of—well, a Mahomedan Paradise. (Laughter.) How there are no roads and consequently no artillery except the mountain batteries, which are carried on the backs of mules. How in the transport, stores of all kinds have to be made up in packets of 8 lbs. each, two of which are a load for a mule and four for a camel, and that in a recent campaign there were no less than 45000 pack animals under the charge of the veterinary staff, and the whole of these had to be examined daily to see that they were fit for work and to weed out the sick. The duty was most harassing, and they had all the diseases in the text books to deal with. In these Afridi mountains the cold is severe during the nights, and owing to these difficulties of transport the men had oftentimes to bivouac without tents, and to spend the night with no protection but their great coats and perhaps the service blanket, with their rest disturbed by the enemy firing into camp. Their rations too would be for breakfast biscuit and beef, dinner beef and biscuit, and supper biscuit and beef again. (App.)

Mr. F. DOWELL said that as no member was present to return thanks for the navy he had much pleasure in doing so. The navy was usually called our first line of defence, and it had been said that without a navy there would have been no Empire, but the navy would not avail without the army to back it. He thought that the right feeling in these matters was "my country first." Not self, nor service, but my country.

Mr. M. CLARK returned thanks on behalf of the Auxiliary Forces. They had hitherto had no arduous duties to perform and no hardships to bear. Their motto was "defence, not defiance" but when the time came for service they would be found ready.

Professor MCFADYEAN proposed "The Central V.M.S. and the President." He said this was the toast of the evening. That Society did not require a superfluity of words to justify its existence. Their members were all members of the R.C.V.S., and like other societies of the sort afforded for their not too frequent opportunities of meeting. It might fairly be claimed that this Society had been wonderfully successful. Although not one of the oldest, in numbers and in the business transacted it was undoubtedly the premier Society of the kind. (Applause.) He thought it might have been more successful, for there were some 350 members in the metropolitan district whilst their membership was only about 150. He could only account for this by the supposition that those other members were largely self-sufficing. He remembered one man, who, when he was invited to join a society, asked "Did they think he was coming there to tell them all he knew." (Laughter.) "The Central" represented the cream of the profession in and around London, and he would say to every practitioner that he had much to gain and nothing to lose by joining it. He felt they had taken the right step in electing Mr. Dollar. In some respect he must be called a remarkable President, for he thought he was the youngest who had occupied that chair, and when they considered his attainments they might fairly say that his youth was a credit to him. He had no question as to the future of the Society or of the profession—no misgivings—whilst they had such men to take up the duties of office. (The toast received musical honours.)

Mr. J. A. W. DOLLAR said that replying to that toast was much like replying for "our noble selves." He was grateful to Professor McFadyean for his kindly words, and he joined with him in wishing their Society prosperity and increase, and he should do his best to promote it. He would only ask them, if perchance his vagaries might offend anyone, that before they came down upon him too heavily they would make sure that the fault really lay on his shoulders. (Applause.)

Mr. BARRETT briefly proposed "Our late President." He was sure they all regretted his absence, and would join with him in acknowledging the unfailing courtesy and energy with which he had performed those duties which he had accomplished so wisely and so well.

The PRESIDENT was sure they would all regret to hear that Col. Kettle was unable to be present from an attack of influenza. This was his first absence from the time he had taken office last year, and he hoped to see him amongst them again soon. On his behalf he thanked them all.

Dr. D'ARCY POWER in proposing "The Royal College of Veterinary Surgeons,' said that the uses of the Corporation were at once evident on looking round that room. Colonel Duck had told them how important a part their profession played in a campaign, and indeed their original Charter showed that the body owed its existence to the desire to safeguard the Army. During their comparatively short corporate life they had had no less than five Charters and one Act, and this showed not only that they were considered of value to the State, but that considerable and important changes had taken place during that time. At the present day the examinations are more practical than ever they were, and he could say that they are conducted in the fairest and best manner. He coupled the toast with the name of Prof. Penberthy. (Applause.)

Professor PENBERTHY, President R.C.V.S., thanked Dr. D'Arcy Power for the kind manner in which he had spoken of them. They were all familiar with their proceedings on the Council. Some of their friends are fond of roasting them, and they are not free from that "sniping" of which Colonel Duck had spoken, from *The Record* and other quarters, and doubtless it helped to keep them on the alert. He very fully recognised the power of the societies to bring about those changes which were from time to time desirable, and which are more easily made by the help of the sccieties. It should be

a great satisfaction that we have such evidence from the outside that our examinations are conducted in so satisfactory a manner. (Applause.)

Mr. W. HUNTING proposed "Our Guests." He considered for several reasons that this was the toast of the evening. What would a dinner be without guests? They supply the sentiment and that friendly feeling which go so far to make the enjoyment of the evening. Many have private guests here to-night, and he thought that those who had looked happier than those who had not. We have other guests—guests of the collective body—who honour us; the guests of the evening. Two of these gentlemen are closely connected with us. Dr. Clarke is a good hunting man and a good surgeon who has added to our physiology and pathology some of the most practical work ever done on the larynx, and whose name you will all recognise in connection with investigations on "roaring" which took place some years back. The other, Dr. Power, is a surgeon and a pathologist of such eminence that I need say nothing on that score. His chief work with us has been as a teacher at the Veterinary College—but no! to my mind the one thing that marks this connection is his lecture at the opening of the session at the R.V.C., in which he pointed out the good which would accrue to the community from a more extended use of our professional capacities. There are also present, Mr. Mason, President N.V.A.; Mr. Wheatley, of the Royal Counties V.M.A.; Mr. King, President Southern Counties V.M.A., and others. We are rich in guests, and I am sure that you will all admit that they have added greatly to the pleasure of the evening.

Dr. CLARKE, in rising to reply, said that he had many friends in the profession, and it was a pleasure to meet some of them there that evening, and especially to see his friend, their president, occuping that position. There were many points on which the two professions met on common grounds, and he hoped that at no distant time all great work in physiology or pathology would be undertaken by them jointly. Like theirs his profession suffered from want of knowledge on the part of the public. They had tinkers and tailors as sanitary inspectors whilst we had soldiers and sailors to guard against disease.

Dr. D'ARCY POWER briefly thanked them for the kind way they had received his name, and for their hospitality. He hoped to come to their meeting again.

Mr. MASON (Pres. N.V.A.), in returning thanks, said that it was on the carpet that there might be a closer union between the local societies and the National. If it came in his year he should be glad, and at any time he should welcome it.

Mr. KING (Pres. S. Counties V.M.A.) thanked them for himself and for the Society he had the honour to represent. It was his first appearance amongst them, but if they asked him again he would surely come.

Mr. PRUDAMES proposed "Our Treasurer and Secretary." We had heard much on many subjects—the R.C.V.S., the N.V.A. and others. Their President would be almost useless without good officers to carry on the business of the Society. In their treasurer they had the right man in the right place; he not only gets the money but he knows how to keep it. He represents Capital in the Society and the secretary represents labour. Their secretary's energy is untiring: always working, often at very great inconvenience to himself but he finds his reward in our great satisfaction.

Mr. ROWE, in thanking them, regretted the absence that evening of many old friends. He annouced that they had a good balance at the bank and something in reserve. That, he felt, was a satisfactory position for a treasurer of a society.

Mr. MAHON thanked them, and was glad that the Society was running so successfully. He should always endeavour to do his best for them.

Mr. WRAGG proposed "The Schools and the Examiners." He said every veterinary surgeon owes a debt of gratitude to the Schools. In his day they only studied two sessions, now they stayed at the schools four, possibly their gratitude should be proportionately greater. The advances in science since his time were many and great, and almost everybody knew something of science. They sometimes found the groom with a thermometer. Then too they were troubled with inquisitive clients, and their questions occasionally bordered on impertinence. They had now a fine staff at each of the schools, and no doubt they were capable of turning out excellent students. He had on his diploma the names of Brand, Taylor, Quain, and Sharpey, all men of the first rank in the profession, and Pritchard, Lepper, Robinson, Gabriel, Mavor for the veterinary portion. He had attended examinations and he had full confidence that they were conducted with advantage to the schools and to the students. He was very pleased to know that the examinations were now carried out in a more practical manner.

Prof. MCFADYEAN said it was a real pleasure to reply for the R.V.C., and for the other colleges. for the kind way in which the toast was proposed and the enthusiasm with which it was received. Mr. Wragg and several others have said that the examinations are now more practical. That is another compliment to the schools. He was pleased to say that their percentage of passes was higher than ever—no less than 70 per cent. in last session. He did not despair of a yet higher percentage, although they were still unable to endow their students with brains, or with that more valuable acquisition—application. The admission of ladies would materially add to the percentage of passes, possibly bring them up to 90 per cent. He would let them into the secret—why the R.C.V.S. was unwilling to admit ladies—the real fact was that they could not trust the examiners. (Laughter).

Col. DUCK briefly acknowledged for the examiners, and said that he had found it a heavy task to go on examining all day. He was confident they had no better body of workers in their service than the examiners.

Prof. MACQUEEN, as a Fellowship examiner, returned thanks. He was sorry that no other examiners were present. The Fellowship examiners are obliged to attend lest some aspersions may be cast on them. He did not agree with his Principal as to the admission of ladies, in fact he thought he rather spoilt his chance of increasing the number of his students. He (Prof. Macqueen) would like to see more gentlemen come forward for the Fellowship. If they would come he did not think they would be disappointed. It was a fair examination. As one of the Fellowship examiners he tried to do his best.

There was a selection of songs during the evening under the direction of Prof. Bayne, who sang "Sons of the Sword" in his admirable style, and a vote of thanks to him for his assistance concluded a pleasant social evening.

EXTRACTS AND NOTES.

ABSTRACT OF A REPORT ON THE PROGRESS OF RESEARCH WORK, AT THE RINDERPEST EXPERIMENTAL STATION KIMBERLY.

By Drs. TURNER and KOLLE.

We have the honour to make a further communication concerning the progress of our work at this station.

When first Professor Koch demonstrated the novel possibility of immunising cattle from rinderpest by using the gall of an animal which had been suffering from the fever for six days, it was surmised that the gall itself or the animals subject to its influence might impart the disease to others.

This very natural fear caused those who had the direction of the preventive measures to confine the gall inoculation to herds already infected or which were in the immediate neighbourhood of infection.

Koch himself was decidedly of opinion that the gall would not give the animal operated upon rinderpest, and based his opinion on the fact that during the time he was experimenting at the Victoria Compound not one animal of those infected with various samples of gall became infected.

Subsequently, it is true, animals did suffer from rinderpest at the station after inoculation of gall, but at that time the station had become the most highly infected area in the whole of South Africa, and the wonder is, not that some animals did contract the disease, but that this accident did not occur with the majority of those brought on to the ground. Even the animals given us for experiment were not free from suspicion, and on four occasions these were found to be suffering from rinderpest and consequently useless for experimental purposes.

Shortly after the use of rinderpest gall had been in practical operation facts were observed which were construed as demonstrating that bile was capable of producing the disease in a fatal form. Reports were received showing that in herds which were declared free from infection at the time of inoculation, the disease appeared subsequently, generally on or about the 10th day, and this belief led to the practice being confined still more closely to areas in which it was feared the pest would soon make its appearance, and in our opinion acted most detrimentally by preventing the formation of a wide area or belt, occupied only by animals protected from rinderpest by inoculation, between the infected areas and those still free from pest, a project which Koch advocated and hoped to see realized.

The fact however that disease did undoubtedly follow the injection even when precautions had been taken to preclude the possibility of previous infection, was allowed to weigh against these observations, and a *post hoc propter hoc* line of argument was followed, although these very experiments, even those which were successful, were necessarily carried out, until quite lately, in highly infected areas. A condition which interefered with their value as crucial experiments whenever the disease followed inoculation.

Dr. Turner had, as far back as April last, requested permission to try the experiment on a large scale under conditions which would, as far as was humanly possible, preclude any risk of the experiment being vitiated by the previous infection of any of the animals. For reasons we have no desire to criticise this permission was withheld until July 13th, when Dr. Smartt and others at Britstown placed herds of animals numbering in all 160 at the disposal of the Government for experiment. These animals were, on account of the great prevailing drought, in a very impoverished condition. They all received 10 c.c. of rinderpest-bile but not one showed any symptoms of the disease in consequence.

The large number of cases in which the injection of gall, even in infected areas, was not followed by the disease and the result of the experiment at Britstown are in our opinion evidence *that the gall itself cannot communicate rinderpest.* This is a fact much to be regretted, because were this possible then the immunity conferred by the bile would be of a much greater duration than it has proved to be. The fact that the disease so often appears on or about the 10th day after bile inoculation is capable of a very simple explanation.

The animals are generally driven into a kraal before the operation. Should only one of these animals in the herd be in the first stages of the disease, although it may roam over the veld without doing much harm, it immediately infects several others when shut up with them. The men who visit the animals frequently seize them by the nose to hold down the head and in this way help to spread the infection very surely.

This risk happens whenever the herd is situated in an area subject to infection, and will occur in all cases even when the operator has taken care that he and his assistants have not been infected while taking the bile from the diseased animal and have properly cleansed the bottles and instruments, and *as the bile does not protect until the 5th or 6th day after injection there is plenty of time for infection to take place.*

Notwithstanding these drawbacks, Koch's method has produced results of the greatest service to the Colony. Sir Godfrey Lagden informs us that in Basutoland, an infected area, out of 100,000 animals injected, 70,000 have been saved and are still free from the disease, and undoubtedly but for this method we should not have been afforded the time necessary to work out a better one.

Glycerinated Bile.

In consequence of the widely spread opinion that Koch's method was dangerous, means have been sought to do away with this supposed danger, and recently Dr. Edington has advocated the addition of glycerine to the gall in the proportion of one part of that liquid to two parts of bile. Dr. Edington claims for this mixture three great advantages.

a. That the disease cannot be spread by the use of glycerinated gall.

b. That a great economy is effected by the use of glycerine : all galls being available.

c. That the mixture will keep.

The use of glycerine for the end proposed is nothing new : it has long been employed for the purpose of purifying and preserving vaccine lymph. Dr. Koch himself considered the advisability of using glycerine in the way mentioned, but found that it was useless and consequently abandoned it.

We quite agree that the glycerinated gall is incapable of spreading the disease, the bile itself being free from this objection. This argument therefore is, to say the least, extremely unsatisfactory.

The second claim (*b*) is that the use of glycerine effects an economy. The mixture of gall and glycerine certainly has a slight immunising power, due to the presence in the gall of a small amount of a peculiar chemical immunising substance. Dr. Edington's first experiments were made with 10 c.c. of gall and 5 c.c. of glycerine—in other words he employed the same dose of gall as Koch recommended, and it was under these conditions that we made experiments to control his results. In some cases the bile and glycerine were mixed in the proportion recommended and were kept for 8 or 10 days. In some the mixture was only allowed to act for 5 hours, in others only five per cent. of glycerine was employed and the mixture was kept 10 days. The results in all cases were similar. When injected with 0·2 c.c. of really active rinderpest blood after ten days the animals without exception suffered severely *and seventy per cent. died in consequence.* After witnessing these experiments Dr. Edington increased the dose of bile and glycerine to 24 c.c. This dose will generally confer an immunity of more than 10 days duration and therefore explains the apparently favourable result obtained at Belmont. This increase however does away with the plea of economy. Twenty-four c.c. of the mixture contain 16 c.c. of bile, which is an increase of sixty per cent. over the quantity required by the Koch method, It is true Dr. Edington claims that he can use all kinds of gall, but the addition of glycerine to a gall which does not happen to possess immunising powers will not render it of any use.

The difficulty too of obtaining good bile has been much exaggerated. If the animals destined to produce immunising gall are infected with a small dose of really

virulent blood, say 1 c.c., and are killed at the end of the sixth day of the fever, at least four out of five will give typically good gall and the gall of the fifth will in all probability be fit for use.

As a matter of fact all galls which do not smell and which are not absolutely red from the presence of a large quantity of blood can be used without danger by Koch's process.

The third advantage claimed, viz., that the gall and glycerine mixture will keep, is undoubtly true, *i.e.* the mixture will retain its extremely feeble immunising powers for a considerable time.

Serum Inoculation.

During our investigations, in continuation of Dr. Koch's experiments, we have devoted special attention to the possibility of procuring an efficient serum. As the pure gall does not confer full immunity until after the 6th day, the point to be aimed at was to discover some method of producing immunity which would be more rapid in its effect and which might perhaps act at once after inoculation and could be employed as a cure, by which means we should be in a position to save herds already infected.

When Prof. Koch attempted to discover a preventive or a cure for rinderpest he first turned his attention to the serum of salted animals. This would inevitably occur to any bacteriologist, and naturally Koch, in whose laboratory Dr. Behring, his assistant, worked out the use of serum in diphtheria and tetanus, was not at all likely to have overlooked this most obvious step. As a matter of fact he used the serum of salted animals in two ways, first alone and secondly after the addition of 1 per cent. of virulent blood, and succeeded by both methods. Previously Pitchford and Theiler had demonstrated the possibility of salting animals with defibrinated blood of salted cattle, and afterwards Drs. Danysz and Bordet brought the system into practical use and determined many important facts with great accuracy. These latter gentlemen have successfully salted very large numbers of animals in the Transvaal.

Our experiments have been carried on both with defibrinated blood and with serum. The action of these two fluids is precisely similar. Defibrinated blood is easily prepared by whipping the blood with an iron wire brush to prevent ordinary coagulation and to remove the fibrin. It consists of serum *plus* the red blood corpuscles; but it is impossible, taking all the precautions practically available, to prepare this fluid on a large scale in such a condition that it will keep for more than a few days.

The serum, which is the defibrinated blood *minus* the red corpuscles, and which is made by allowing the blood to coagulate and the clot to contract, can with ordinary care be prepared so that, with the addition of a small percentage (0.5 per cent.) of Phenol, it may be bottled and kept for a long time.

The animals which provide the serum are prepared in the following manner:—

A salted animal is obtained, either one naturally salted or one which has been given the rinderpest after having been slightly immunised. There are various ways of obtaining salted cattle which we will not now discuss. As soon as the animal has recovered from the disease, it is injected with 100 c.c. of virulent blood. This generally produces a febrile reaction. As soon as the reaction is over, 200 c.c. are injected and the dose is thereafter increased to 500, 1000, 2000, 3000, and 4000 c.c. at once, always waiting for the reaction from the last inoculation to subside before administering the blood.

For such a salted animal 30 c.c. of defibrinated blood or its equivalent 20 c.c. of serum is an effective dose. For example: at the experimental station we have treated 24 animals suffering from rinderpest in the earlier stages, *i.e.* with the symptoms well marked, and all have recovered. Such a result is naturally not to be expected in the hands of farmers who cannot take the temperature of the animal regularly as we do, and therefore do not know when to repeat the dose. This repetition, however, is not often necessary. To show the strength of the serum, two animals already suffering from rinderpest were injected with 100 and 500 c.c. of virulent blood respectively. 1-1000 of a c.c. of this blood would have killed a full-sized ox. Next day they each received 200 c.c. of serum; both have recovered.

An experiment on a large scale was on the farm Brakpan, belonging to the De Beers Company. The animals on this farm were suffering severely. On August 19th 48 head were already dead. Of the remaining 76 only 16 were, as far as observation and the use of the thermometer could decide the question, yet free from disease. On the days mentioned these animals received 40 c.c. of the defibrinated blood, equivalent to 27 c.c. of serum. On August 22nd some which required it were reinoculated, and the disease was stopped with a loss of 7 animals all of which were ill and not expected to recover when first inoculated, the proportion of loss being under 8 per cent. The great majority of these animals are no doubt salted.

On the farm De Bad out of 285 cattle 79 had died up to the 16th August. On that date they were inoculated with glycerinated gall, between August 16th and 19th, 12 died. On August 19th the remaining 188 were inoculated with defibrinated blood obtained from the station. The result was that 25 died, equal to 13·3 per cent., the rest are now quite well. The same farmer applied on August 25th for enough blood for a herd of 376 animals; 4 had recently died. On August 26th the 376 beasts were injected with 30 c.c. each of defibrinated blood. As a result the disease ceased after 16 animals, or 4 per cent., had succumbed, and the remainder are at present quite well.

Again more recently on a farm belonging to De Beers Company the herds were affected. Out of 472 animals 166 had died before inoculation was undertaken, leaving 306 which were inoculated with serum, after which only 46 died, or 15 per cent., the remainder of the herd being now quite well.

With each sample of blood sent out for inoculation we have always issued printed forms asking to be informed as to the circumstrnces of the case and the result obtained. We have sent out up to date 55,980 c.c. of serum which is enough for 2,800 animals and 355,020 c.c. of blood sufficient for 11,834 head. yet we very rarely are favoured with any reply to our request. When once the disease is stopped the farmer takes no further notice, regardless of the fact that we are thus compelled to work to a great extent in the dark. If the result is not favourable we hear of it quickly enough.

Duration of Immunity.

The duration of the immunity conferred by the methods hitherto considered, *i.e.* the gall, the glycerinated gall, and the serum, varies considerably.

The pure gall is undoubtedly the most powerful, the action much resembles that of vaccine in the case of small-pox, and just as vaccine does not confer the same amount of protection as does an attack of smallpox so the gall fails to protect to the same extent as rinderpest. The immunity conferred by gall may be taken on an average as being four months, and as in Russia the rinderpest has been shown to protect for five years the bile immunity is therefore about 1-15 of the natural protection. There are, it is true, reports which represent that the gall immunity has worked out in three weeks or so, but in these cases there can have been no immunity. Either the gall was taken from an animal which had never suffered from rinderpest at all or it happened to be one of those samples which are occasionally found in animals dead of the disease and which are void of all

protective powers. The glycerinated gall will not protect for ten days in doses of 15 c.c., the dose of 24 c.c. will protect longer. Serum in doses of 20 c.c. protects for about the same time; by using larger doses, 100 c.c. or more, the French experts inform us the immunity may be prolonged to two months; but these results we have not yet had time to verify.

It has been recommended to inject the animals with blood after the use of either of these means of protection. The fact that the animals at the Station were more immune than those operated on elsewhere gave some reason for this statement, because these beasts were, as a matter of routine, tested with blood after bile inoculation. All previous experiences gained in treating kindred diseases show that a febrile reection is necessary to the production of an active and prolonged immunity. But this reaction was not manifest in this case. Yet, as the use and effect of bile was novel, and as the facts seemed to support this opinion, the use of blood was recommended, Recent events, however, show that the riderpest in this respect conforms to the general rule, and that immunity conferred by the use of rinderpest blood is slight, unless followed by a reaction, which is very unusual when the blood is used after bile. The animal may be salted by the use of small doses of virulent blood after gall and glycerine, but the process is very dangerous. More than half the animals die when so small a quantity as 0.2 c.c. of really virulent blood is used; the reason that more accidents have not occurred is that the blood used, having been used with citrate of potash, is very inactive. Its inactivity is shown by the long incubation period and the very large proportion of animals inoculated with this blood, for the purpose of procuring gall, which recover. Besides the quantity employed is very small. Many of the animals in consequence do not react after this treatment, and are therefore not properly protected. The serum or defibrinated blood can be made to give a long immunity if it is used after the animal has become infected, or if the animal be purposely infected after the use of the blood or serum. The French experts do this by smearing the nose of the animals with rinderpest excreta, blood, etc., after the inoculation of 100 c.c. defibrinated blood, and then put them in contact with animals suffering from the disease. The animals on the 5th or 6th day are again inoculated with another 100 c.c. of the defibrinated blood. In this way many of the animals take the disease, and a large proportion of them salt.

Inoculation with Rinderpest Blood Simultaneously with Serum.

The successful result obtained on the De Beers farm, Brakpan, where the majority of the animals were already infected, and after the inoculation of serum nearly all recovered, induced us to experiment in the direction of inducing infection *before* attempting to immunise.

Our experiments have proved so successful that we are able to recommend a process which appears devoid of most, if not all, difficulties we have mentioned.

Process to give a prolonged immunity to animals not already infected with rinderpest.

Serum and not defibrinated blood must be used.

(1) Because it can be kept, which is a great advantage, especially now in the hot weather when the transport of blood wonld be difficult, if not impossible. Moreover, it permits the farmer to keep a small supply by him for emergencies.

(2) The strength of the defibrinated blood or of the serum of different animals varies somewhat. In the case of serum it has been found to fluctuate between as little as 10c.c. and as much as 20 c.c. This is a great practical difficulty when dealing with defibrinated blood, because it is necessary to suit the dose of serum to the dose of virulent blood.

Serum allows us to overcome this difficulty readily, because as it keeps, we can mix the serum obtained from a large number of animals. This alone tends to reduce the strength to an average. But we are not dependent upon this; we can actually test the serum, *i.e.*, ascertain by experiment its power, and when sending out serum for actual use in the veld we can give definite instructtructions as to the dose, both of the serum and the blood, to be used.

(3) The use of defibrinated blood is not without danger. All blood used at the station is carefully examined, and the danger is in great part avoided; but still it has happened that malarial disease has been conveyed by means of blood due to an organism in the red corpuscles, and two animals have died from this cause. Redwater may be communicated in this way, and various other diseases. But the serum is not open to the same objection, at least not to anything like the same degree. The experiments we have lately concluded show that it is necessary to ensure *actual infection*, for without this there is no permanent safety. While its power lasts the serum protects the animal and prevents its infection with rinderpest, but as soon as the effect of the serum passes off the animal again becomes susceptible to the disease, and on exposure to its infection may contract it and die. The farmer in whose herd the disease has appeared, and after using serum finds that the disease has stopped short, and who has lost none of his animals, rejoices. We, who know the truth, are, on the contrary, sincerely sorry for him, because we feel certain *that the serum used has been too powerful*. None of his animals has suffered severely, and in all probability very few of the herd are therefore salted. The herd in which several have died is usually in a much more satisfactory state. This opinion, the result of our experiments, is in accord with the facts observed in Russia, and is greatly strengthened thereby.

The object, therefore, is to ensure infection of as definite and severe a character as possible, and at the same time to administer the serum in such a dose as to ensure the safety of the animal. It will then have suffered from the disease, and will enjoy as high and durable a degree of immunity as it is possible to confer. This object may be easily obtained by injecting the virulent blood, 1 c.c. on one side of the animal, and immediately after 5, 10, 20 c.c. of the serum on the other side.

We direct the blood and serum to be injected in different sides, not because this is of importance, if they are injected away from each other this is sufficient; but if they were introduced together or in close proximity the serum would infallibly destroy the rinderpest virus and the animal would not become ill.

Used in this way the virulent blood infects the animal before the serum has time to take effect, the rinderpest organisms enter the blood immediately and immediately begin to multiply. The serum does not produce its effect before some hours have past. Thus the presence of the organism in a blood containing a chemical immunising substance of a definite strength is ensured. The organism is not actually destroyed, but it is attenuated. The animal suffers from a modified form of the disease, showing all the usual symptoms, and is salted.

In conclusion we beg to point out that the work we are bringing to an end we have systematically pursued since Koch's unavoidable departure upon lines which we have reason to believe he himself would have followed had he remained.

Rabies and Hydrophobia.

At St. Bartholomew's Hospital Mr. S. F. Langham, the City coroner, said he wished to publicly state the result of important experiments arising out of an inquest he held last week. He (the Coroner) had now received word that the six rabbits had all since died, which thus cleared up the doubt. As the matter was one of grave public interest, he felt it his duty to let the public know the result. The jury agreed with the Coroner that the death of the rabbits should be made public, as otherwise a suspicion would arise that hydrophobia would follow any dog bite.—Dr. Henry William Haines stated that the rabbits would be placed in the Hospital Museum, and the Jury thanked the doctor and his colleagues for their efforts in proving that the dog must have been mad. —(*See p. 261*).

ARMY VETERINARY DEPARTMENT.

Extract from *London Gazette*, dated 9th November, 1897 :—

Vet.-Major Charles W. Gillard, half pay, retires on retired pay. Dated 10th November, 1897.

It has been decided to reduce the staff pay of the inspecting veterinary officers, Madras and Bombay commands, to Rs. 350 a month from the dates on which the present incumbents vacate their appointments, and to increase the staff pay of the inspecting veterinary officer, Punjab Command, to Rs. 350 a month from the date of the first of those reductions. The officers who return home from India this year on relief are: Vet.-Major A. Bostock, Vet.-Capt. S. M. Smith, and Vet.-Lieuts. C. B. M. Harris, E. Wilkinson, R. L. Crawford, H. P. Turnbull, C. Rose, H. J. Axe, and W. J. Tatum. Vet.-Capt. J. Cooper will be brought on to the home establishment on the expiration of his leave.

CORRESPONDENCE

ROYAL VETERINARY COLLEGE *V.* PRIVATE PRACTITIONERS.

SIR,

Where are we? What are we? Where did we come from? *Where are we going to?* The dogs or the d—l. Please give the enclosed correspondence a very prominent place in your next issue. Let all the world know it.—Yours truly,

A DISGUSTED V.S.

[COPY.]

"From conversation with your representative, I gathered you would prefer to examine any new horses we wish to buy, and that your fee for same is 10s. 6d.; is that 10s. 6d. each horse or 10s. 6d. each *lot*. As we have six we are about to buy, could be examined to-morrow morning.—Reply by bearer would oblige."

[ANSWER.]

Dear Sir,

My charge for examination for soundness is one guinea per horse (usual professional fee), but for my own private contracts, where I am personally interested in the firm and also the horse stock, I only charge 10s. 6d. per horse. I shall be very pleased to examine the new horses you mention to-morrow personally, and advise you as to purchase, any time except from 11 to 11.30, at that time I have an appointment.—Yours truly,

[ANSWER TO MY LETTER].

If you cannot say better than 10s. 6d. each horse, we must send them to the College, as they charge at the rate of 2 guineas for 10 horses. If you can do at same rate you can see them before 11 o'clock, if you will let me know not later than 9 o'clock to-morrow morning.

Horses went to the College.

THE TEACHING OF ELEMENTARY SURGERY.

Sir,

Notwithstanding the boasting of the rapid progress of science there yet remains much to be done in the way of instilling into our students that knowledge is power only when properly applied. From what I have seen of some of the students turned out of late from the British veterinary schools I begin to think that elementary surgery as applicable to the domesticated animals is not taught. They absolutely know nothing of the principles of *asepticism*, let alone the practice of it. What operations they do perform simulate those of a butcher. Cleanliness of person by many is an unknown quantity: they grow nails like birds' talons which are the receptacles of filth, the quicks of which are as rough as the coronary band of an unshod colt; and the use of the nail scissors and cleaner I should say are not known to them. Their surgical instruments are as clean as the farrier's tools. If they dress a wound they do it in a fashion which would be a disgrace to a groom.

Teachers! for goodness sake teach your students like you would a parrot. By habit alone will they learn. Examiners do your duty at your forthcoming examinations. Let it not be said you shirk your duty, either of you. Perhaps it may be that you are incompetent. The public judge by actions not by ideas. The average British student is uot a patch to his continental *confrère*, especially in the carrying out of the principles and practice of surgery. He is made to do his work in a proper manner. So ought the British student be made to likewise.—Yours etc.,

PROGRESSIONIST.

[We are not responsible for the opinions expressed by correspondents.—ED.]

EQUUS.— "The Horse," by W. H. Flower, (Kegan Paul), will probably serve your purpose. Some other writers on the subject are: Weissmann, "Continuity of the Genus Horse"; Gaudry, "*Enchainements du Monde Animal*"; Flower, "Osteology of the Mammalia"; Huxley, "Anatomical Peculiarities of the Horse Tribe"; Prof. O. Marsh, "Development of the Horse Tribe."

COMMUNICATIONS, BOOKS, AND PAPERS RECEIVED:—Messrs. Alex. Glass, G. Mayall, C. Stephenson, H. Gray, H. Leeney, F. C. Mahon, H. D. Chorlton, J. E. Kitchen, J. T. King, C. Pack. "Zeno," "Progressionist," "A Disgusted V.S."

The Diseases of the Dog (George Müller), *The Daily Mail*, *The Birmingham Daily Mail*, *The Daily Mail* (Hull).

We shall be obliged by early intelligence of all matters worth bringing under the notice of the profession, and thankful to any friends who may send us cuttings from local papers, containing facts of interest.

Original articles and reports should be written on one side only of the paper, and authenticated by the names and addresses of the writers, not necessarily for publication.

Communications for the Editor to be addressed 20 Fulham Road, S.W.